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EXAMINER	
PHILIPPE, GIMS S	

ART UNIT	PAPER NUMBER
2613	19

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/516,035	Applicant(s) COHEN ET AL.	
	Examiner Gims S Philippe	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 6-20* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. Applicant's amendment received on March 29, 2004 has been fully considered and entered, but, the arguments with respect to claims 1-4, and 6-20 are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4, 6-8, and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US Patent no. 6,275,531) in view of Mishra (US Patent no. 6,075,768).

Regarding claims 1 and 12-19, Li discloses a method for streaming scalable video including a base layer data and enhancement layer data (See Li's Abstract). The method comprising the steps of transmitting the base layer for a given interval within a plurality of time intervals (See Li fig. 1, items 30 and 60, and col. 3, lines 20-21), selecting a predetermined number of frames to distribute (See Li col. 3, lines 39-43). The applicant should duly note that the claimed *"predetermined number of frames"* if found in Li's N number of enhancement layer data. The method comprises the steps of calculating a reduced amount of enhancement layers data to transmit in the

predetermined number of frames (See Li col. 3, lines 59-64), and transmitting the reduced amount of enhancement layer data in the given interval (See Li col. 3, lines 58-67 and col. 4, lines 1-3).

It is noted that Li does not specifically disclose determining loss of bandwidth occurring as one of the factors for effecting the number of enhancement layers to be transmitted as specified in claim 1.

However, Mishra discloses a method and apparatus for streaming scalable video including the step of determining loss of bandwidth occurring as one of the factors for effecting the number of enhancement layers to be transmitted (See Mishra col. 5, lines 7-12, lines 32-36, col. 9, lines 54-67, and col. 10, lines 1-19).

Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of determining if a loss of bandwidth has occurred in a given interval, and would be motivated to look to Mishra' step of determining the loss to incorporate such step in Li's method and apparatus. The motivation for performing such determination is to avoid the degradation in the image quality due to a sudden loss of bandwidth as a result of network overload as taught by Mishra (See Mishra col. 1, lines 32-43).

The applicant should note that the target image quality as disclosed in Mishra col. 5, line 9 is considered predetermined, an a predetermined number of frames must be set to distribute for fair bandwidth sharing.

As per claims 2 and 20, most of the limitations of this claim have been noted in the above rejection of claim 1. In addition, Li further discloses the same method comprising transmitting non-enhancement layer during a given interval (See Li col. 5, lines 48-49, and col. 9, lines 53-55) wherein the guaranteed base layer is a non-enhancement layer.

As per claims 3 and 8, most of the limitations of this claim have been noted in the above rejection of claim 1.

It is noted that Li is silent about distributing the loss of bandwidth evenly over the predetermined number of frames.

However, Mishra discloses distributing the loss of bandwidth evenly over the predetermined number of frames (See Mishra col. 9, lines 30-38).

Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of modifying Li's apparatus and method for streaming scalable video by incorporating Mishra' step of distributing the loss of bandwidth evenly over the predetermined number of frames. The motivation for performing such modification in Li is to reduce the difference in image quality between different video streams so that all streams cover the same level of image quality as taught by Mishra (See Mishra col. 3, lines 4-14).

As per claim 4, most of the limitations of this claim have been noted in the above rejection of claim 1.

It is noted Li is silent about determining if there is still space in the given interval in order to transmit at least a portion of a reduced amount of enhancement layer from a second interval as specified in claim 4.

However, in col. 3, lines 60-64, Li discloses *"determining a number of M enhancement layers capable of being received from the transmission channel".* It should be noted that in order to determine a number of additional enhancement layer data capable of being received from the transmission channel at least the enhancement

encoder must determine the amount of space available when negotiating with the network.

Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of determining if there is still space in the given interval in order to transmit at least a portion of a reduced amount of enhancement layer from a second interval. The skilled artisan would be motivated to look to Li's prioritization step (See Li col. 5, lines 41-67) to determine if there is still space in the given interval in order to transmit at least a portion of a reduced amount of enhancement layer from a second interval. The motivation being that if more space is available in the given interval the finer the granulity of the reconstructed video image will be.

As per claim 6, most of the limitations of this claim have been noted in the above rejection of claim 1. In addition, Li discloses the same method for streaming scalable video wherein the enhancement layer has a fine grain scalability structure (See Li col. 3, lines 1-17).

Regarding claims 7-8, Li discloses a method for streaming scalable video including a base layer data and enhancement layer data (See Li's Abstract). The method comprising the steps of transmitting the base layer for a given interval within a sequence of time intervals (See Li fig. 1, items 30 and 60, and col. 3, lines 20-21), selecting a predetermined number of frames (See Li col. 3, lines 39-43). The applicant should duly note that the claimed *"predetermined number of frames"* is found in Li's N number of enhancement layer data. The method comprises the steps of producing a reduced amount of enhancement layer data (See Li col. 3, lines 59-64), and transmitting

the reduced amount of enhancement layer data in the given interval (See Li col. 3, lines 58-67 and col. 4, lines 1-3). The applicant should also note that the claimed *"given interval"* is analogous to Li's interval disclosed in col. 1, lines 46-47.

It is noted that Li is silent about distributing the loss of bandwidth evenly over the predetermined number of frames as one of the factors for effecting the number of enhancement layers to be transmitted as specified in claim 7.

However, Mishra discloses distributing the loss of bandwidth evenly over the predetermined number of frames (See Mishra col. 9, lines 30-38).

Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of modifying Li's apparatus and method for streaming scalable video by incorporating Mishra' step of distributing the loss of bandwidth evenly over the predetermined number of frames. The motivation for performing such modification in Li is to reduce the difference in image quality between different video streams so that all streams cover the same level of image quality as taught by Mishra (See Mishra col. 3, lines 4-14).

Regarding claim 11, Li discloses an apparatus for streaming scalable video including a base layer data and enhancement layer data (See Li's Abstract). The apparatus comprising means for transmitting the base layer for a given interval (See Li fig. 1, items 30 and 60, and col. 3, lines 20-21), means for selecting a predetermined number of frames to distribute (See Li col. 3, lines 39-43). The applicant should duly note that the claimed *"predetermined number of frames"* is found in Li's N number of enhancement layer data. The apparatus comprises the means for calculating a reduced amount of enhancement layers data to transmit in the predetermined number of frames (See Li

col. 3, lines 59-64), and means for transmitting the reduced amount of enhancement layer data in the given interval (See Li col. 3, lines 58-67 and col. 4, lines 1-3). The applicant should also note that the claimed *"given interval"* is analogous to Li's interval disclosed in col. 1, lines 46-47.

It is noted that Li is silent about distributing the loss of bandwidth evenly over the predetermined number of frames as one of the factors for effecting the number of enhancement layers to be transmitted as specified in claim 7.

However, Mishra discloses distributing the loss of bandwidth evenly over the predetermined number of frames (See Mishra col. 9, lines 30-38).

Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of modifying Li's apparatus and method for streaming scalable video by incorporating Mishra' step of distributing the loss of bandwidth evenly over the predetermined number of frames. The motivation for performing such modification in Li is to reduce the difference in image quality between different video streams so that all streams cover the same level of image quality as taught by Mishra (See Mishra col. 3, lines 4-14).

7. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US Patent no. 6,275,531) in view Mishra as applied to claim 1 above, and further in view of Chaddha (US Patent no. 5,742,892).

Regarding claim 9, the combination of Li and Mishra discloses streaming scalable video including a base layer data and variable enhancement layer data (See Li's Abstract). Transmitting the base layer for a given interval within a series of time intervals (See Li fig. 1, items 30 and 60, and col. 3, lines 20-21), selecting a predetermined

number of frames to distribute (See Li col. 3, lines 39-43). The applicant should duly note that the claimed *"predetermined number of frames"* is found in Li's N number of enhancement layer data. Calculating a reduced amount of enhancement layers data to transmit in the predetermined number of frames (See Li col. 3, lines 59-64), and transmitting the reduced amount of enhancement layer data in the given interval (See Li col. 3, lines 58-67 and col. 4, lines 1-3). The applicant should also note that the claimed *"given interval"* is analogous to Li's interval disclosed in col. 1, lines 46-47.

It is noted that Li does not specifically disclose determining loss of bandwidth occurring as one of the factors for effecting the number of enhancement layers to be transmitted as specified in claim 1.

However, Mishra discloses a method and apparatus for streaming scalable video including the step of determining loss of bandwidth occurring as one of the factors for effecting the number of enhancement layers to be transmitted (See Mishra col. 9, lines 54-67, col. 10, lines 1-19).

Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of determining if a loss of bandwidth has occurred in a given interval, and would be motivated to look to Mishra's step of determining the loss to incorporate such step in Li's method and apparatus. The motivation for performing such determination is to avoid the degradation in the image quality due to a sudden loss of bandwidth as a result of network overload as taught by Mishra (See Mishra col. 1, lines 32-43).

It is also noted that although Li accomplishes the decoding of the multiplexed streams with the algorithm of flow diagrams 1100-1400 of fig. 11-14 (See Li col. 6, lines 13-15 and fig. 11-14), it is silent about the memory medium including code for streaming scalable video as specified in claim 9.

However, Chaddha discloses a memory medium including code for streaming scalable video (See Chaddha fig. 1, server 20 with memory medium 80, and col. 4, lines 27-58).

Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of providing a memory medium including code in Li's server of the steps of streaming scalable video (which is suggested by Li since it provides a server along with the methods and algorithms as disclosed in col. 6, lines 13-15). The motivation for modifying Li is to satisfy the need to provide encoding such that a server storing the code outputs embedded data streams from which decoders may extract video having different spatial resolutions, temporal resolutions and data rates as taught by Chaddha (See Chaddha col. 1, lines 17-21 and col. 2, lines 44-48).

Regarding claim 10, Li discloses streaming scalable video including a base layer data and enhancement layer data (See Li's Abstract). Transmitting the base layer for a given interval (See Li fig. 1, items 30 and 60, and col. 3, lines 20-21), selecting a predetermined number of frames to distribute (See Li col. 3, lines 39-43). The applicant should duly note that the claimed *"predetermined number of frames"* is found in Li's N number of enhancement layer data. Calculating a reduced amount of enhancement layers data to transmit in the predetermined number of frames (See Li col. 3, lines 59-64), and transmitting the reduced amount of enhancement layer data in the given interval (See Li col. 3, lines 58-67 and col. 4, lines 1-3). The applicant should also note that the claimed *"given interval"* is analogous to Li's interval disclosed in col. 1, lines 46-47.

It is noted that Li does not specifically disclose determining loss of bandwidth occurring as one of the factors for effecting the number of enhancement layers to be transmitted as specified in claim 1.

However, Mishra discloses a method and apparatus for streaming scalable video including the step of determining loss of bandwidth occurring as one of the factors for effecting the number of enhancement layers to be transmitted (See Mishra col. 9, lines 54-67, col. 10, lines 1-19).

Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of determining if a loss of bandwidth has occurred in a given interval, and would be motivated to look to Mishra's step of determining the loss to incorporate such step in Li's method and apparatus. The motivation for performing such determination is to avoid the degradation in the image quality due to a sudden loss of bandwidth as a result of network overload as taught by Mishra (See Mishra col. 1, lines 32-43).

It is also noted that although Li accomplishes the decoding of the multiplexed streams with the algorithm of flow diagrams 1100-1400 of fig. 11-14 (See Li col. 6, lines 13-15 and fig. 11-14), it is silent about a memory which stores executable codes for streaming scalable video as specified in claim 10.

However, Chaddha discloses a memory, which stores executable codes for streaming scalable video (See Chaddha fig. 1, server 20 with memory medium 80, and col. 4, lines 27-58).

Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of providing a memory which stores executable codes in for streaming scalable video in Li's server (which is suggested by Li since the prior art provides a server along with the methods and algorithms as disclosed

in col. 6, lines 13-15). The motivation for modifying Li is to satisfy the need to provide encoding such that a server which stores the executable codes outputs embedded data streams from which decoders may extract video having different spatial resolutions, temporal resolutions and data rates as taught by Chaddha (See Chaddha col. 1, lines 17-21 and col. 2, lines 44-48).

8. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

REMARKS:

The examiner introduced a prior art, namely Mishra US 6075768 in the last office action, however, the applicant did not present any argument as to why the prior art is not applicable or does not meet the claimed limitations. It is the Examiner's belief that Mishra does meet the limitations. A new action is submitted because of a typographical error causing the omission of claims 12-16. The examiner further believes that Mishra alone will meet most limitations if not all, however, the feature that the applicant believes patentable is met in the fair bandwidth sharing apparatus and method of Mishra.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gims S Philippe whose telephone number is (703) 305-1107. The examiner can normally be reached on M-F (9:30-7:00) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S Kelley can be reached on (703) 305-4780. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gims S Philippe
Primary Examiner
Art Unit 2613

GSP

June 10, 2004